

CONTACT, DISCLOSURE, STEREOTYPES, AND ATTITUDES TOWARD PEOPLE WITH
PHYSICAL DISABILITIES: THE MEDIATOR EFFECTS OF INTERGROUP ANXIETY
AND SOCIAL SUPPORT

By
© 2017

Gabrielle A. Byrd

Submitted to the graduate degree program in Communication Studies and the Graduate Faculty
of the University of Kansas in partial fulfillment of the requirements
for the degree of Master of Arts.

Chairperson Dr. Yan Bing Zhang

Dr. Angela Gist

Dr. Adrianne Kunkel

Date Defended: April 6, 2017

The Thesis Committee for Gabrielle A. Byrd certifies that this is the
approved version of the following thesis:

CONTACT, DISCLOSURE, STEREOTYPES, AND ATTITUDES TOWARD PEOPLE WITH
PHYSICAL DISABILITIES: THE MEDIATOR EFFECTS OF INTERGROUP ANXIETY
AND SOCIAL SUPPORT

Chairperson Dr. Yan Bing Zhang

Date Approved: April 10, 2017

Abstract

Guided by intergroup contact theory (Allport, 1954; Pettigrew, 1998), the current study examined the influences of perceptions of individuals without disabilities ($N = 189$) regarding their communication experiences with the most frequent contact with an invisible physical disability on willingness to communicate with, stereotypes, and attitudes toward people with physical disabilities as a group. In addition, the current study tested the mediator effects of social support (Hypothesized Model 1) and intergroup communication anxiety (Hypothesized Model 2). Using Hayes' (2013) PROCESS for SPSS, mediation analysis of model 1 showed that spontaneous and protective disclosure, communication frequency and quality all had a significant indirect effect through social support on willingness to interact, intergroup attitudes, and endorsement of stereotypes toward people with disabilities. Testing of the second model revealed that intergroup communication anxiety was a significant mediator between communication quality and all dependent measures. In both models, spontaneous disclosure and communication quality had a significant positive direct association with willingness to interact and a negative association with stereotypes, respectively. Furthermore, results revealed that communication quality had a significant positive direct effect on willingness to communicate in model 1 and communication frequency had a significant positive direct effect on both affective and behavioral attitudes in model 2. In addition to contact frequency and quality, this study is unique in terms of including communicative measures of contact and social support as a positive mediator in examining intergroup perceptions. Implications of the findings are discussed with respect to prior literature on interability communication (i.e., disability as an intergroup marker), and intergroup contact theory.

Keywords: intergroup contact theory; intergroup contact; disclosure; disability; interability; intergroup attitudes; social support

Acknowledgments

I would like to thank my committee members – Dr. Yan Bing Zhang, Dr. Angela Gist and Dr. Adrienne Kunkel. These three brilliant scholars have shown me mentorship in a way that I never imagined. I will be forever grateful for the passion, dedication, time, and immense support from three incredibly smart and strong women scholars who have inspired me to continue on in this world of academia. As I have written about and studied social support within this project, I am lucky to have three people who epitomize that kind of support for me.

More specifically, thank you to Yan Bing. Not every graduate student can say that their advisor truly brings a smile to their face even in the hardest moments, and I can. Yan Bing is one of a kind and I thank the universe everyday for bringing me into her office and into her academic family. Thank you for believing in me and in this project. Yan Bing's guidance throughout my Master's program has made me a better researcher, student, teacher, and person. I look forward to continue to learn and grow with you.

Next, I would like to endlessly thank the person who started this whole thing. Dr. Makiko Imamura, who struggled with me in ballet, believed in me in a quantitative methods class enough to see I could be the TA, taught me about intercultural communication throughout Japan, and guided me to graduate school. You have been such a valuable teacher, mentor, and friend to me and I can't imagine this journey without you.

Thank you to my amazing friends. I am thankful to have incredible friends both in Lawrence and from Saint Mary's. Amanda, Mari, Monica, and Julia – thank you for being who you are and supporting me in every way. Thank you for being my friends when I don't respond or call back for days at a time. I am beyond lucky to call you my people.

And, to my friends here at KU. Thank you. I have never been more inspired, mentored, and supported by a group of people. Thank you to everyone that read drafts, listened to me

ramble about results, stress about deadlines, and distracted me with coffee and milkshakes.

Specifically, Casi Bird, Josh Morgan, Elaina Ross, Gretchen Montgomery, Abigail Kingsford, Allie Chase, Mike Kearney, and Lindsay Harroff. I have learned so much from you all and I am so thankful for your friendship.

I could not thank my family without thanking my Granny. My Granny told me to go on and get my education every chance she could. I know she is watching me as I do just that. *I love you*. I would not be succeeding in graduate school without the rest of my family. Thank you for your endless support, love, and much needed comic relief. Mom, Dad, Sissy, & Aunt Diane – you have been there for me every step of this journey. I will never forget you following me around Jayhawk Blvd. on our first visit yelling “We are so proud!” – I hope this makes you proud too.

Table of Contents

Abstract	iii
Acknowledgments	v
Table of Contents	vii
Chapter One: Introduction and Rationale	1
Chapter Two: Literature Review	6
Stereotypes and Attitudes Toward People with Physical Disabilities	6
Interability Communication and Intergroup Contact Theory	9
Disclosure and Topic Avoidance	12
Types of Disclosure in PWD	16
Intergroup Anxiety and Social Support as Mediators	18
Chapter Three: Method	22
Chapter Four: Results	27
Chapter Five: Discussion	30
Summary of Major Findings	30
Suggestions for Future Research and Limitations	36
References	39
Figure 1	48
Figure 2	49
Figure 3	50
Figure 4	51
Table 1	52
Appendix A	53
Appendix B	55
Appendix C	56
Appendix D	57
Appendix E	58
Appendix F	59
Appendix G	60
Appendix H	61
Appendix I	62
Appendix J	63
Appendix K	64
Appendix L	65
Appendix M	66

Chapter One:

Introduction and Rationale

Interability communication, the communication between people with disabilities and people without disabilities, has attracted more scholarly attention due to the demographic increase and humanistic concern for the wellbeing of people with disabilities (e.g., Allen, 2011; Braithwaite & Braithwaite, 2003). As of 2010, approximately 1 in 5 people (i.e., 20% of the population or 56.7 million people) in the United States had a disability (Bernstein, 2012). Specifically, the National Center for Health Statistics reported a dramatic increase in people with disabilities under 45 years of age due to better diagnosis of conditions that are predominantly invisible, including chronic fatigue syndrome, asthma, back and joint problems, etc. (Matthews & Harrington, 2000). As this demographic continues to rise and policy implementations have brought people with disabilities into the workplace and educational spaces, there is an increased likelihood of interability interactions in both organizational and interpersonal contexts. However, having a disability remains a stigmatized identity with people without disabilities labeling people with disabilities as incompetent, lacking control, sick, unattractive, and passive, to name a few (Blockmans, 2015; Ryan, Bajorek, Beaman, & Anas, 2005).

In fact, analyzing the evolution of terms used to refer to people with disabilities underscores the ways in which disability has been historically stigmatized (Ryan et al., 2005). In the mid-twentieth century, people with physical disabilities were called “cripples” and referred to as “useless” or “imperfect” (Ryan et al., 2005). Then, the “label of ‘handicapped’ was used but it came to be known as ‘crippled’” (Ryan et al., 2005, p. 130). Using labels that represent the inaccessibility of having a disability legitimizes the obstacle in question and depersonalizes the person with a disability. Therefore, appropriate language highlights how “individuals with disabilities are not their diagnoses or disabilities” (Allen, 2011, p. 153), which separates the

person with a disability from the stereotypes associated with the term. Aiming to ameliorate this history of stigmatizing language, allies of people with disabilities put forth “People First” Language (PFL), which “provides an objective way to acknowledge, communicate, and report on disabilities by stressing each person’s individuality” (Allen, 2011 p. 153; Texas Council for Developmental Disabilities, 2007). Utilizing People First Language, this study will use the term people with disabilities (PWD), but acknowledges that there are a variety of terms that can be used and may be preferred by the social identity group studied.

With the establishment of the Americans with Disabilities Act (ADA) in 1990, people with disabilities became legally protected in the workplace, but the general public was just becoming aware of the inequities facing people with disabilities in all aspects of life. Communication research in the context of disability reflects these inequalities. Braithwaite and Labrecque (1994) put forth ways to help the ADA become more effective and bring about appropriate and satisfactory communication between people with disabilities and people without disabilities after discovering the issues continuing to plague people with disabilities in the workplace. More specifically, Ellsworth (2003) reported on the difficulty that individuals with non-visible disabilities face in the workplace when requesting accommodations. Obviously, communication research has focused heavily on organizational contexts (Ellsworth 2003; Ellsworth 2008; Cohen & Avanzino, 2010) and educational accommodations (Blockmans, 2015; Frymier & Wanzer, 2003). Other lines of research have examined how strangers interact with people with disabilities (Grove & Werkman, 1991), how families deal with chronic illness and disability (Checton, Greene, Magsamen-Conraden, & Venetis, 2012; Gabriel, Figueiredo, Jacome, Cruz, & Marques, 2014; Giallo & Gavidia-Payne, 2006), and how social support is enacted online for people with disabilities (Braithwaite, Waldron, & Finn, 1999). Research has

also extended to examine how interability communication is associated with close relationships between people without disabilities and people with disabilities (Braithwaite, 1991; Braithwaite & Harter, 2000). The current study extends the disability literature by focusing on the roles of communication in the reduction of intergroup stereotypes and biases.

Interability communication is oftentimes unsatisfying to both groups (Ryan et al., 2005). For example, research has shown that people without disabilities are uncertain how to communicate in interability situations. As a consequence of high uncertainty, interability communication is predominately guided by the negative stereotypes of people with physical disabilities, which is very problematic (Allen, 2011; Braithwaite & Labrecque, 1994). Hence, when interability interactions are considered to be failures or misunderstandings, the person without a disability tends to view the entire outgroup negatively (Spencers-Rodgers & McGovern, 2002). However, through a meaningful interpersonal relationship with a person with a disability, the individual without a disability has the opportunity to understand and appreciate the outgroup leading to improved intergroup attitudes (Swart, Hewstone, Christ, & Voci, 2011). Therefore, each interaction with a person with an invisible physical disability brings the possibility of reducing prejudice that is due to unfamiliarity and separation between groups (Brewer & Miller, 1996). Thus, the current study seeks to understand how communication with the most frequent contact with an invisible physical disability is associated with intergroup stereotypes and attitudes toward people with physical disabilities as a whole.

Intergroup contact theory, which proposed that positive contact experiences with outgroup members are positively associated with improved intergroup attitudes and intergroup harmony (Allport, 1954; Pettigrew, 1998), has guided intergroup communication research for decades. Prior contact research primarily examined intergroup relations in the context of race

(Swart et al., 2011; Wagner, Hewstone, & Machleit, 1989), age (Caspi, 1984; Harwood, Hewstone, Paolini, & Voci, 2005), religion (Hutchinson & Rosenthal, 2010), and has recently been extended to the cross national context (Imamura, Zhang, & Shim, 2012). Continuing this line of research, the current study examines the influences of specific communication variables (e.g., self-disclosure and contact quality) with people with an invisible physical disability on people without disability's willingness to communicate with, stereotypes, and attitudes toward people with physical disabilities as a whole. In addition, the current study tested the mediating effects of enacted social support and intergroup anxiety. As contact frequency is a key factor in changing attitudes toward an outgroup due to the continued exposure to an outgroup member (Harwood et al., 2005), the current study features the individuals without disabilities' most frequent contact with an invisible physical disability in the development of attitudes toward people with physical disabilities as a group.

In line with the research programs of Braithwaite and Braithwaite (2003) and Charmaz (1991), this project highlights the importance of disclosure as a manifestation of contact for people with invisible physical disabilities. Disclosing information about a disability is a potentially stigmatizing experience for people with disabilities as it touches on a person's self-concept and self-esteem (Charmaz, 1991). Additionally, Charmaz (1991) explains that visible disabilities eliminate the ability to choose "whom to tell, when to tell, or how to tell" people health-related information (p. 111). Private information is assumed to be public knowledge, but, people with invisible physical disabilities must grant legitimacy to their disability by revealing private information to others. Even further, a key aspect that may explain intergroup anxiety and activation of stereotypes when discussing disability is not simply that the disability is disclosed, but *how* the disability is disclosed. Charmaz (1991) has explained the various ways people with

disabilities disclose information. In the current study, protective disclosing and spontaneous disclosing are the focus (Charmaz, 1991). However, there is little research on the influence the type of disclosure has on intergroup anxiety, enacted social support, the person without a disability's willingness to interact, intergroup attitudes, and stereotypes toward people with physical disabilities.

College students with disabilities experience stigma, problems with relational initiation, and judgment from their peers and peers without disabilities who are not their friends (Braithwaite, 1990; Worley, 2000). Worley (2000) underscores the importance of studying college students when looking at intergroup relations since college campuses can “serve as a microcosm representing, to a degree, the social beliefs and behaviors of the larger society” (p. 125). Therefore, “by focusing on the attitudes and behaviors of the nondisabled with persons who are disabled on the college campus, researchers have an opportunity to understand these dynamics better” (Worley, 2000, p. 125). As such, college campuses serve as an ideal context to move toward positive attitudinal change, especially toward lower status and minority groups, such as people with physical disabilities. Worley (2000) suggests that “social change may be effected through the process of education, since perspectival shifts within the academy have the potential to impact both immediate and future attitudes and behaviors toward persons with disabilities,” (p. 126) making college students the ideal population for improving the stereotypes and stigma surrounding people with disabilities.

To begin, a conceptualization of invisible disability and how it fits into attitudes and stereotypes toward people with physical disabilities is explored, followed by an explanation of disclosure and its ties to intergroup communication anxiety and enacted social support. Finally, intergroup contact theory will provide the theoretical framework for this study.

Chapter Two:

Literature Review

Stereotypes and Attitudes Toward People with Physical Disabilities

In today's society, particularly in Western culture, ability, independence, and beauty are held in high regard. Thus, ableism, "the perfect, species-typical and therefore essential and fully human" has been created (Allen, 2011, p. 142). This ideology of normality common in the United States has caused people with disabilities to become stereotyped and stigmatized as they differ from what is considered a normal state of health (Allen, 2011). Previous research highlights how people with disabilities are stereotyped: as dependent, incompetent, lacking control, unproductive, sick, burdensome, unattractive, hypersensitive, helpless, passive, and childlike. (Blockmans, 2015; Ryan et al., 2005).

Indeed, who we are and how we navigate social interactions depends on social categorization. Social categorization "creates and defines an individual's place in society" (Oakes, 2003, p. 3). Previous research has largely considered social categorization to be a road to bias, as social categorization can lead to stereotyping, prejudice, and ultimately discrimination (Operario & Fiske, 2003). Whether or not individuals are aware of it, stereotypes have pervasive effects on behavior, most commonly toward outgroup members (Ryan et al., 2005). Research in aging and intergenerational communication shows that the activation of "older" stereotypes without the awareness of the participant impacts health outcomes in both positive and negative ways (Levy, 2003). For instance, when negative stereotypes were primed, older adults were seen to behave with reduced memory performance, handwriting quality, and cardiovascular stress indicators; but, when positive stereotypes were primed, older adults' memory, handwriting, walking gait, and health indicators improved (Levy, 2003). However, the priming of positive stereotypes can sometimes lead to negative communicative and relational consequences

(Hummert, Shaner, & Garstka, 1995). Thus, both positive and negative stereotypes have the potential to harm stigmatized, lower status, and minority groups, such as people with physical disabilities (Ryan et al., 2005). In order to understand the link between disability and stereotyping, a conceptualization of key terms is necessary.

Allen (2011) outlines one way in which impairment and disability is systematically categorized, which was originally put forth by Longmore and Umansky (2001). This particular scheme is made up of six classifications: physical conditions, mental conditions, sensory impairments, learning disabilities, neurological conditions, and addictive disorders. However, different groups and pieces of legislation (e.g., Individuals with Disabilities Education Act) categorize disability differently. This is because ability is a socially constructed identity, thus the different categories are treated differently by members of the majority group without disabilities (Allen, 2011). For instance, people with learning disabilities, mental health, and the myriad other conditions that fall under the broad term of disability deal with entirely different stereotypes and are treated differently by people without disabilities. Therefore, people with invisible physical disabilities are the focus of the current study in order to understand in depth how this specific group under the umbrella term of disability can see a change in intergroup relations through contact with people without disabilities.

In the current study, an invisible disability is defined as a disability that “is hidden so as not to be immediately noticed by an observer except under unusual circumstances or by disclosure from the disabled person or other outside source” (Matthews & Harrington, 2000, p. 405). Nonvisible, hidden, and invisible are all accepted terminology in discussing this type of disability. However, Matthews and Harrington (2000) explain why invisible disability is the preferred term; “*invisible* is the subtle, yet important, distinction between the meaning of these

terms. *Nonvisible* or *hidden* implies that the condition can be seen if only one would look and discover it; *invisible*, however, implies that the condition cannot be seen” (406). Approximately 40% of people with mental and physical disabilities identify as having an invisible disability (Matthews & Harrington, 2000). Invisible disabilities can stem from chronic illness and include mental and physical illnesses, such as diabetes, heart disease, depression, bipolar disorder and Crohn’s disease.

The visibility of illness and the impact and consequences of visibility on the attitudes and behaviors toward people with physical disabilities is important to understand. As such, Goffman (1963) explained the impact of visibility on stigmatization and negative attitudes toward people with disabilities. Goffman’s (1986) explanation of discreditable persons as people whose “differentness is not immediately apparent, and is not known beforehand” (p. 42). Allen (2011) explained the corporeal standard of being healthy as “normal” causing illness to be considered a deviation in today’s society. Therefore, people with invisible disabilities have great impetus to keep their differentness hidden, which Goffman (1986) refers to as passing. Matthews (1994) investigated the privacy boundaries of people with invisible disabilities in order to understand the visibility factor in feelings of stigma and shame. The invisible nature of disability ties into impression management and self-disclosure, as Matthews (1994) found that people with invisible disabilities feared disclosure would “elicit unwanted sympathy, invite judgment, and damage existing relationships with people who might not understand their disability and, most significantly, might not find them believable” (Matthews & Harrington, 2000, p. 409). Thus, people with invisible disabilities have the opportunity to redefine typical interactions surrounding disability, while simultaneously fearing the stigmatization disclosure would elicit.

Interability Communication and Intergroup Contact Theory

Intergroup contact theory has been a guiding theory of intergroup communication for decades (Allport, 1954; Pettigrew, 1998). Intergroup contact theory provides an important theoretical framework for understanding changing attitudes toward outgroup members, such as people with physical disabilities. Intergroup contact theory originated from Allport's (1954) intergroup contact hypothesis, which proposed that frequent and positive intergroup contact is capable of reducing intergroup prejudice and improving intergroup relations. In order to achieve more positive intergroup relations, Allport's contact hypothesis (1954) outlines the four conditions that promote a more harmonious relationship between groups: equal status, intergroup cooperation, common goals, and supportive norms. Thus, *under the right conditions*, hostility between groups that is due to unfamiliarity and separation can be improved by positive contact, eventually reducing prejudice and increasing positive intergroup attitudes (Brown & Hewstone, 2005; Pettigrew, 1998).

Decades of research has followed since the conception of the hypothesis. Research in general has indicated how different contact experiences with outgroup members are associated with intergroup attitudes and biases. Specifically, and most relevant to the current study, research has highlighted the importance of examining cross-group friendships as an important dimension of contact in understanding how to minimize stereotypes and improve intergroup relations (Swart et al., 2011; Pettigrew, 1998). However, research in the field of intergroup contact is still questioning *how* cross-group friendships promote the reduction of prejudice (Swart et al., 2011). Previous research provides three main aspects of contact through cross-group friendship that has the ability to personalize people with disabilities and enhance intergroup relations (Gaertner & Dovidio, 2000). First, a personal friendship with a member of the outgroup can lead to more

tolerant attitudes toward that outgroup in general (Pettigrew, 1998). Thus, being friends with a person with an invisible physical disability has the potential to improve intergroup relations. Second, the knowledge that a person without a disability has become friends with a person with a disability (an outgroup member) can reduce biases even when group salience remains high for the observer. Finally, interpersonal interaction produces more positive feelings by reducing biases toward the disadvantaged group when there is positive contact directly and indirectly through a variety of processes.

The majority of contact research has examined frequency and quality of contact as independent variables. Continued exposure to an outgroup member has the ability to change attitudes associated with that outgroup (Harwood et al., 2005), therefore frequency of communication is established as an important independent measure in contact research. Even more so, communication quality is important to test since a meaningful relationship with a person with an invisible physical disability has the opportunity to help the individual without a disability appreciate people with disabilities as a whole and has the ability to lead to improved intergroup attitudes (e.g., Swart et al., 2011). The current study is unique in that it includes additional communicative manifestations of contact particularly important to the context of disability by including two types of disclosure about health information: spontaneous disclosure and protective disclosure as explained by Charmaz (1991).

Moving from dyadic level interactions to group level attitudes, intergroup contact theory aims to improve intergroup relations by changing attitudes held toward outgroup members, specifically lower status or minority groups, such as people with physical disabilities. In intergroup contact research, attitudes are typically measured on three dimensions: affective, behavioral, and cognitive (Pettigrew, 1986; Pettigrew & Tropp, 2008). Attitudes are defined as

evaluative responses to objects or classes of objects (Pettigrew & Tropp, 2008). Attitudes consist of stereotypes, beliefs, prejudice, judgment, and emotions and are important indicators of intergroup relations, which is why the three dimensions of attitudes are major dependent variables in intergroup contact research. First, affective attitudes deal with emotions or how one feels about the outgroup as a whole (e.g., favorable or unfavorable), and are primarily operationalized as a global measurement of attitude as it is in the current study (Pettigrew & Tropp, 2008). The behavioral dimension of attitude deals with willingness to engage an outgroup member or the likelihood of a range of behaviors with an outgroup member. In addition to the ABC model (i.e., the tripartite model of attitudes), the current study measures a more communication oriented variable measuring behavior, the person without a disability's willingness to interact with people with physical disabilities as a whole. Finally, the cognitive dimension represents one's perceptions, judgments, and beliefs about a group, which has been predominately measured using global traits (e.g., warm, cold, tolerant, intolerant). The current study includes the endorsement of stereotypes toward people with physical disabilities as a major outcome variable. Incorporating group-specific traits (e.g., unproductive, helpless, and lack control; Ryan et al., 2005) about the minority group being studied (i.e., people with physical disabilities) strengthens the literature on intergroup contact.

Intergroup contact theory has been applied in various contexts. From the original field work testing the intergroup contact hypothesis (Allport, 1954) to the racially desegregated housing projects (Deustch & Collins, 1951), intergroup contact theory has contemporarily looked at race (Swart et al., 2011; Wagner, Hewstone, & Machleit, 1989), age (Caspi, 1985; Harwood et al., 2005), and the cross-national context (Imamura et al., 2012). However, the theory has not been applied to interability communication adequately (cf. Werth & Lord, 1992). Continuing this

application of intergroup contact theory to the context of physical disability, the current study examines the relationship between quality and frequency of contact with spontaneous and protective disclosure by the individual without a disability's most frequent contact with an invisible physical disability and willingness to interact with, stereotypes of, and attitudes toward people with physical disabilities as a group.

In order to understand how interability communication between individuals without a disability and people with invisible physical disabilities affects attitudes toward people with physical disabilities as an outgroup, it is important to understand disclosure as a type of contact and how people with invisible disabilities manage and negotiate differences.

Disclosure and Topic Avoidance

Previous research brings an initial understanding to the ways in which disclosure functions as contact between groups and impacts intergroup anxiety. People with invisible disabilities believe there to be many reasons to keep their illness concealed (Matthews & Harrington, 2000). Thus, understanding the importance of disclosure and how a person with an invisible disability chooses to conceal and reveal information about their disability is crucial. Using a metaphor of coming out common in non-heterosexual and homosexual subcultures, Schneider and Conrad (1980) explored the coming out experience for people with epilepsy. Their research found that "when individuals desire to be 'normal' and lead conventional lives the potential of stigma is isolating; persons fear disclosure of discreditable information and may limit their contacts or connections with others" (Schneider & Conrad, 1980, p. 42). The possibility of stigma leads people with invisible disabilities to "have great impetus to keep their conditions concealed" (Matthews & Harrington, 2000). Schneider and Conrad (1980) explain this "stigma as 'potential'" (p. 33), which falls under two assumptions: "1) that knowledge of

one's epilepsy be limited to relatively few others, and 2) that if it were to become more widely known, significant redefinition of self, accompanied by various restrictions and regulation of conduct, might well follow" (p. 33). Unlike the majority of other stigmatized subcultures, many people with invisible disabilities will never know another person who has the same illness or disability as themselves, making illness an isolating experience (Schneider & Conrad, 1980). As such, in interability interactions, people with invisible physical disabilities face an ongoing challenge of balancing what information they will reveal and conceal to people without disabilities (Braithwaite & Harter, 2000).

Moreover, previous research asserts that people with disabilities avoid disclosing disability and choose to conceal illness as a way to distance themselves from that aspect of their identity (Charmaz, 1991). Indeed, passing as a person without a disability can allow PWD to avoid the stigma and stereotypes commonly associated with disability. Afifi and Guerrero (1998) outline three general motivations for avoiding disclosure: (1) relationship-based, (2) individual-based, and (3) information-based. Individual-based motivation is face-saving with the "hope of protecting or enhancing one's self image, or [to] maintain autonomy and psychological privacy" (Afifi & Guerrero, 1998, p. 244). Caughlin, Afifi, Carpenter-Theune, and Miller (2005) asserted that the decision to reveal a secret can be explained by the discloser's expectation of what will happen if the secret is revealed, which supports Afifi and Guerrero's (1998) idea of self-protection as a way of explaining avoidance. Disclosure is "a form of telling in which someone reveals self" (Charmaz, 1991, p. 108); therefore, disclosing information about a disability touches on a person's self-concept and self-esteem. Thus, in conjunction with the possibility of being rejected and losing control, people with disabilities face interactional risks, such as "1) being rejected and stigmatized for disclosing and for having an illness (cf. Ponce, 1976), 2) being

unable to handle others' responses, and 3) losing control over their emotions" (Charmaz, 1991, p. 113). People with disabilities seek to be known for attributes other than their illness and do not want that aspect of their identity to cloud people's judgment, which leads to concealing of their illness and avoiding disclosure.

Furthermore, not all private information provides the same risk when disclosed (Petronio, 2002). The degree of perceived risk is based on the possibility of repercussions when revealing information about a disability. High risk episodes of disclosure deal with incidents that could potentially threaten or embarrass the discloser (Petronio, 2002; Petronio & Durham, 2015). Therefore, people with disabilities believe that "articulating our emotions about the situation may not take place if we think it would expose a weakness" (Petronio, 2002, p. 66). As previous research explains, people with physical disabilities have been negatively stereotyped as burdensome, childlike, and helpless, to name a few (Blockmans, 2015; Ryan et al., 2005). Therefore, a person with an invisible disability who is able to pass as a person without a disability is able to participate in interability interactions without activating these stereotypes in communicative partners. However, once the disability is disclosed, the risk of being viewed by these stereotypes greatly increases (Petronio, 2002). In addition, PWD are prone to "rejection sensitivity", or the fear of rejection based on their marginalized group identity (Williams & Mickelson, 2008). This fear of being negatively stereotyped impacts the way PWD seek support and leads PWD to accept support that they deem discriminatory, abusive, or microaggressive (Allen, 2011). Therefore, people with physical disabilities feel the need to control the information about their disability in order to control the perceptions surrounding their disability.

As such, individuals, specifically people with invisible disabilities, make thoughtful and active decisions about who to disclose private information to (Petronio, 2002; Braithwaite,

1991). Indeed, the process of disclosure for interability relationships is salient to people with disabilities (Braithwaite, 1991). Petronio (2002) outlines four possible positive outcomes of disclosure: (1) expression, (2) self-clarification, (3) self-validation, and (4) social control. Previous research suggests that social control is the most salient outcome for people with disabilities (Petronio, 2002, Schneider & Conrad, 1980). For instance, in terms of self-clarification, Petronio (2002) says people with disabilities may learn how to cope with a situation after revealing the private information to another person. For social control, when telling a friend or co-worker about information regarding the disability, the discloser may have the power to influence the way people without disabilities should think about the situation. This perspective is also in line with the concept of intergroup empathy discussed in depth by Dovidio, Johnson, Gaertner, Pearson, Saguy, and Ashburn-Nardo (2010). Essentially, through self-disclosure, people with invisible disabilities have the opportunity to experience empathy from those without disabilities as empathetic concern is increased through increased knowledge about the disability and the reduction of perceived dissimilarity, negative stereotypes, and uncertainty regarding the disability (see Stephan & Findlay, 1999 for intergroup empathy in general). As an individual's knowledge about a particular situation associated with an outgroup member increases, they are likely to take part in perspective taking, which leads to the possibility of a more rewarding interpersonal relationship with the outgroup member (Davis, 1983; Dovidio et al., 2010).

Although previous research shows that disclosure makes the person without a disability more comfortable, it does not always result in best outcomes for the person with a disability (Braithwaite, 1991). The disclosure process between a person with an invisible disability and a person without a disability is a complicated process. However, non-disclosure has both physical and relational risks for people with invisible physical disabilities (Cutrona, 1996; Matthews,

1994). Previous research found that attempting to pass as a person without a disability may cause the person with an invisible physical disability to impinge on doctor's orders, leading to emotional and physical consequences. For instance, when a person with an invisible physical disability is prescribed a medication to take at lunchtime, but does not take the medication because they are at lunch with a friend, they are risking physical harm (Matthews & Harrington, 2000). In addition, concealing information regarding an individual's invisible physical disability could potentially violate relational expectations and norms, such as trust and honesty (Matthews, 1994). Hence, disclosure has advantages and disadvantages to people with invisible disabilities, especially in interability interactions. However, it is not only important to understand *why* people with invisible disabilities disclose information, but *how* people with invisible disabilities disclose that information. Therefore, in line with Charmaz (1991), this study outlines two main types of disclosing commonly used by people with disabilities in order to measure disclosure as contact in interability interactions.

Types of Disclosure in PWD

People with invisible disabilities choose how to reveal and conceal illness with commitment and planning. Invisible disabilities allow the person with a disability to choose how, what, when and to whom to tell about their illness. Avoiding disclosure allows the person with a disability to claim identities other than illness (Charmaz, 1991). Specifically, people with invisible disabilities often refuse to grant legitimacy to their needs for accommodations by avoiding disclosure (Charmaz, 1991). Mainly, the dilemmas of disclosure revolve around control—allowing the PWD to regain control of their identity and information. With previous research in mind, two main ways to disclose information about illness and disability emerged in the research: protective and spontaneous disclosing.

Protective disclosing. First, protective disclosing is “designed to control how, what, when, and who people tell about their illness. They intend to protect others and themselves from shock, anger, and fear about their illness and its future implications” (Charmaz, 1991, p. 119). When done effectively, protective disclosing controls the timing and form of the disclosure buffering the emotional effect. Protective disclosing falls in line with the goals of information and social control.

Spontaneous disclosing. Spontaneous disclosing “includes full expression of raw feelings, open exposure of self, and minimal or no control over how, when, where, what, and whom to tell” (Charmaz, 1991, p. 119). Unlike protective disclosing, spontaneous disclosing tends to happen immediately after diagnosis or after a dramatic lifestyle change due to a disability. This type of disclosing can deal with both positive and negative news. Since this type of disclosure can be rambling or flooded with emotion, the person with a disability may feel ashamed or embarrassed by the way they dealt with the disclosure (Charmaz, 1991). Spontaneous disclosure is extreme self-exposure as the person with disability reveals fears regarding the disability and their identity as a person with a disability.

In line with previous intergroup communication research, contact between outgroup members is measured in terms of communication frequency and communication quality. In order to extend the literature, disclosure is included as a dyadic measure of contact in order to examine how communication frequency, quality, and two types of disclosure about health information affect attitudes toward people with disabilities as a cultural group. In order to better understand the attitudinal change from the dyadic to group level, intergroup anxiety and social support are explained as important mediating variables.

Intergroup Anxiety and Social Support as Mediators

Even the possibility of contact with members of an outgroup someone dislikes or considers threatening is a source for considerable anxiety (Wilder & Simon, 2003). Intergroup anxiety is defined as the threatening feelings or uncertainty experienced in intergroup interactions oftentimes originating from concerns about how one should act, how one might be perceived, and whether one will be accepted (Stephan & Stephan, 1995). Thus, intergroup anxiety leads people in the majority group, such as young adults without disabilities, to act problematically in communicating with people with physical disabilities (Braithwaite & Labrecque, 1994). Intergroup anxiety can lead to a variety of outcomes that hinder future contact. For instance, people without disabilities may avoid interacting with people with physical disabilities, misconstrue the experience of interacting with people with physical disabilities, or behave defensively in a way that will undermine the experience (Wilder & Simon, 2003).

Since intergroup anxiety interferes with successful contact experiences, previous research points to the importance in reducing intergroup anxiety in order to reduce prejudice from contact (Pettigrew & Tropp, 2008; Stephan & Stephan, 1985; Wilder & Simon, 2003). There is a large line of research including intergroup anxiety as a mediating variable testing the relationship between intergroup contact and attitudes toward an outgroup (Pettigrew & Tropp, 2008; Paolini, Hewstone, Cairns, & Voci, 2004; Voci & Hewstone, 2003). Thus, intergroup anxiety is established as an important mediator in intergroup contact research, however, it has not been examined thoroughly in the interability context. Hence, the current study expands the current literature by examining the mediating function of intergroup anxiety in individuals without disabilities' interactions with people with invisible physical disabilities.

In addition, in the current study extends intergroup contact theory by including a positive mediating variable, enacted social support (Goldsmith, 2004). Research guided by intergroup contact theory has primarily tested negative intervening variables, most often intergroup anxiety (Stephan & Stephan, 1985; Voci & Hewstone, 2003). However, Pettigrew and Tropp (2008) argued for the importance of studying intergroup friendship and the possible positive mediating processes. Recent studies have introduced positive intervening variables, such as relational solidarity and communication accommodation (Imamura, Zhang, & Harwood, 2011; Harwood et al., 2005; Imamura et al., 2012). As one answer to Pettigrew and Tropp's (2008) call, the current study examines enacted social support as a mediating variable.

Social support is both verbal and nonverbal behavior utilized with the intention of providing assistance to others perceived as needing help (Burleson & MacGeorge, 2002). Social support includes tangible support, informational support, and emotional support (Burleson & MacGeorge, 2002). The perception of supportive behaviors leads to a sense of greater security and less interpersonal anxiety (Pierce, Sarason, & Sarason, 1991). Previous research highlights the importance of social support at the time of diagnosis and throughout a chronic illness and/or disability (Cutrona, 1996; Pennebaker, 1990). Specifically, having someone to share fears and express sorrows with strengthens the relationship between the person with a disability and the person without a disability. Pennebaker (1990) agrees that disclosing about health issues through writing or talking can have beneficial effects on health and well-being. Specifically, at the time of disclosure, enacted social support from the individual with a disability has the ability to impact further interactions and impact attitudinal change between groups.

People with invisible disabilities fear rejection and stigmatization, which is why the disclosure process and interability interactions in general can be laden with anxiety (Williams &

Mickelson, 2008). The fear of being stigmatized and stereotyped impacts the way people with disabilities seek support (Allen, 2011). Throughout the course of disability and disclosure, people with invisible disabilities are in need of support. Therefore, social support from the individual with a disability to their most frequent contact with an invisible physical disability is important in understanding how future disclosure and attitudes toward disability will be handled.

As shown in the review of literature, stereotypes surrounding people with physical disabilities influences the way people with invisible physical disabilities disclose information and navigate life with gaps between the identity they put forward to others and the one they know of themselves. Intergroup contact theory provides a theoretical framework explaining how contact between individuals without a disability and people with invisible physical disabilities affects intergroup relations.

The present study seeks to explore how contact between the person without a disability and their most frequent contact with an invisible physical disability affects the individual without a disability's attitudes toward people with physical disabilities as a group through the lens of intergroup contact theory. Based on the review of literature, the following hypotheses are posited:

Hypothesis 1: The participant without a disability's perceptions of disclosure (spontaneous and protective) by their most frequent contact with an invisible physical disability's disability during the first conversation(s) about his/her disability and communication frequency and quality with that same person will be positively associated with attitudes toward and willingness to interact with people with physical disabilities, and negatively associated with endorsement of stereotypes.

Hypothesis 2: The participant without a disability's perceptions of spontaneous and protective disclosure from their most frequent contact with an invisible physical disability about his/her disability, in addition to communication frequency and quality with the same person will have indirect effects through intergroup anxiety and social support on attitudes and stereotypes toward and willingness to interact with people with physical disabilities.

Chapter Three:

Method

Participants. Participants in the current study included 197 individuals without disabilities who had communicated with at least one individual with an invisible physical disability ($N = 189$; M age = 20.80, $SD = 4.37$) and were recruited from the basic public speaking course at a large, Midwestern university for extra credit and via social media. Of the participants, 72.6% were female. The majority (74.1%) was White, 5.6% were Hispanic, 4.6% were African American, 1% were American Indian, 11.2% were Asian or Pacific Islander, and 3.6% identified as Other. Of the participants, 42.6% were Freshman/First Year in college, 19.8% were Sophomore/Second Year in college, 11.7% were Juniors/Third Year in college, 11.2% were Seniors/Fourth Year in college, and 14.7% identified as being in another year of their education.

Procedure. The survey contained three parts (see Appendix). In the first part, participants were asked to answer questions about their demographics, whether or not they had a disability, and whether or not they knew people with both invisible and visible physical disabilities. After completing the background information about the participant themselves, participants were asked to identify and answer questions regarding their intergroup communication experience with their most frequent contact with an invisible physical disability. Within this section, participants reported basic information about their most frequent contact with an invisible physical disability (sex, age, type of relationship, length of the relationship, type of disability, and how the participant found out about their most frequent contact with an invisible physical disability's disability). Then, participants reported their perceptions on the spontaneous and protective disclosure and social support during the first conversation(s) about their most frequent contact with a disability's invisible physical disability in addition to communication frequency and quality, in general. In the third part of the questionnaire, participants answered questions

regarding intergroup anxiety, their behavioral, affective, and cognitive attitudes toward people with physical disabilities, in addition to willingness to interact with people with physical disabilities and their endorsement of stereotypes associated with people with physical disabilities.

Measurements Concerning the Most Frequent Contact with an Invisible Physical Disability

Spontaneous Disclosure. Four items were used to measure the spontaneous behaviors of the participants without disabilities' most frequent contact with an invisible physical disability during the first conversation(s) about his/her disability ($\alpha = .65$; $M = 2.30$; $SD = 1.06$). Sample items include "He/she was babbling on about his/her disability" and "He/she was flooded with emotions during the disclosure about his/her disability." Items were measured on 7-point Likert scales (1 = Strongly Disagree and 7 = Strongly Agree); this measurement scale was created using Charmaz's (1991) interviews regarding people with disabilities' personal accounts of disclosure and can be found in Appendix C.

Protective Disclosure. Four items measured protective disclosure ($\alpha = .75$; $M = 2.86$; $SD = 1.30$) with sample items including "He/she explained his/her disability to me using information from his/her doctor's appointment and research" and "He/she seemed to soften the news about his/her disability to protect me." Items were measured on 7-point Likert scales (1 = Strongly Disagree and 7 = Strongly Agree); this measurement scale was created using Charmaz's (1991) interviews regarding people with invisible disabilities' personal accounts of disclosure and can be found in Appendix C.

Social Support. Ten items were used to measure the amount of social support the person without a disability utilized when communicating with the person with an invisible physical disability during the first conversation(s) about his/her disability ($\alpha = .91$; $M = 5.62$; $SD = 1.79$).

Sample items include “I make this person feel valued and important”, “I expressed concern about this person’s situation”, and “I helped them find something positive in their situation” using 7-point Likert scales (1 = Strongly Disagree 7 = Strongly Agree). This scale was modified from Pierce, Sarason, and Sarason (1991) and can be found in Appendix D.

Contact Frequency. Three items were used to measure the degree of contact with the most frequent contact with an invisible physical disability ($\alpha = .84$; $M = 4.26$; $SD = 1.79$). Sample items include “How often do you do things with this person?”, “How often do you do things socially with this person?”, “How often do you do work related things (including school work) with this person?” The items were measured on 7-point Likert scales (1 = Not Very and 7 = A great deal); this measurement scale was adapted from Biernat and Crandall (1994). The full scale can be found in Appendix E.

Contact Quality. Six items were used to measure the quality of contact with the participants’ most frequent contact with an invisible physical disability ($\alpha = .83$; $M = 5.89$; $SD = 1.11$). Sample items include “How much do you value the time that you have spent with this person?”, “How pleasant has your contact been with this person?”, and “How friendly has your contact been with this person?” This scale was adapted from Spencers-Rodgers and McGovern (2002). The full scale can be found in Appendix F.

Measurements Concerning Outgroup

Intergroup Anxiety. Eleven items were used to measure intergroup anxiety toward people with physical disabilities in general ($\alpha = .81$; $M = 2.81$; $SD = .80$). Sample items include “I would feel certain when interacting with people with disabilities”, “I would feel irritated when interacting with people with disabilities”, “I would be defensive when interacting with people

with disabilities”. This scale was adapted from Ruble and Zhang (2012) and can be found in Appendix H.

Willingness to Interact. Four items were used to measure participants’ willingness to interact with people with physical disabilities as a whole ($\alpha = .94$; $M = 6.66$; $SD = 1.57$). This scale was adapted from Imamura et al. (2012) and measured on 7-point Likert scales (1 = Extremely unwilling and 7 = Extremely willing). Sample items include “How willing are you to chat with a person with a physical disability?”, “How willing are you to initiate conversation with a person with a physical disability?”, “How willing are you to communicate with a person with a physical disability?” The full scale can be found in Appendix I.

Affective Attitudes toward People with Disabilities. Nine items were used to measure participants’ affective attitudes towards individuals with physical disabilities as a whole ($\alpha = .96$; $M = 5.43$; $SD = 1.23$). Participants reported their feelings toward people with physical disabilities as a whole on 7-point semantic different scales. The scale is made up of bipolar adjectives describing general feelings toward people with physical disabilities (e.g., cold-warm, negative-positive, uncomfortable-comfortable). Items were adapted from Imamura et al. (2012). The full scale can be found in Appendix J.

Behavioral Dimension of Attitude. Eight items were used to measure participants’ behavioral attitudes toward people with physical disabilities as a whole ($\alpha = .91$; $M = 5.53$; $SD = 1.04$). Participants reported their willingness to engage in behaviors and activities in given scenarios (e.g., develop more than just a speaking acquaintances with people with physical disabilities; accept people with physical disabilities as a close friend.) on 7-point scales (1 = Strongly Disagree and 7 = Strongly Agree). Items were adapted from Imamura et al. (2012). The full scale can be found in Appendix L.

Cognitive Dimension of Attitude. Fourteen items were used to measure participants' cognitive attitudes toward people with physical disabilities as a whole ($\alpha = .96$; $M = 5.17$; $SD = 1.09$). Participants reported their perceptions of people with physical disabilities, in general, on 7-point semantic differential scales. Items were adapted from Tropp and Pettigrew (2005) and have bipolar adjectives describing general perceptions of people with physical disabilities (e.g., intolerant-tolerant, incompetent-competent, stupid-intelligent). The full scale can be found in Appendix K.

Stereotypes toward People with Physical Disabilities. Eleven items were used to measure participants' acceptance of negative stereotypes associated with people with physical disabilities ($\alpha = .95$; $M = 2.67$; $SD = 1.20$). Participants reported their endorsement of each stereotype (e.g., People with physical disabilities lack control; People with physical disabilities are helpless.) on 7-point Likert scales (1 = Strongly Disagree and 7 = Strongly Agree). Items were created using Ryan et al.'s (2005) investigation into stereotypes on people with physical disabilities. The full scale can be found in Appendix M.

Chapter Four:

Results

To test the hypothesized models, analysis of mediation (Model 4) with 5,000 bootstrap samples using Hayes (2013) PROCESS was conducted. Spontaneous disclosure, protective disclosure, communication frequency, and communication quality were entered as the independent variables (*X*) separately in both models with the other three variables entered as covariates. One dependent variable (willingness to interact, affective attitudes, behavioral attitudes, cognitive attitudes, and stereotypes toward people with disabilities) was entered as *Y* each time. In hypothesized model 1, social support was entered as the mediator, while intergroup anxiety was entered as the mediator in hypothesized model 2. Altogether, the two hypotheses tested the indirect and direct effects of communication on intergroup attitudes, stereotypes and willingness to communicate in the two hypothesized models (see Figure 1 and Figure 2). Correlations among all major variables are shown in Table 1.

Specifically, for the first hypothesized model, the results of mediation analysis indicated that there were significant indirect effects of spontaneous disclosure through social support on willingness to interact, intergroup attitudes (i.e., affective, behavioral, and cognitive attitudes), and stereotypes toward PWD (Indirect Effect = .07_[95%CI=.078;.795] for willingness to interact, Indirect Effect = .07_[95%CI=.162;.605] for affective, Indirect Effect = .04_[95%CI=.017;.353] for behavioral, Indirect Effect = .06_[95%CI=.097;.540] for cognitive, Indirect Effect = -.04_[95%CI=-.119;-.027] for stereotypes). There were significant indirect effects for protective disclosure through social support on willingness to interact, the three dimensions of attitude, and stereotypes (Indirect Effect = .06_[95%CI=.100;.454] for willingness to interact, Indirect Effect = .06_[95%CI=.203;.191] for affective, Indirect Effect = .04_[95%CI=.026;.993] for behavioral, Indirect Effect = .05_[95%CI=.140;.149] for cognitive, Indirect Effect = -.04_[95%CI=-.816;-.066] for stereotypes). There were significant indirect

effects of frequency through social support on willingness to interact, intergroup attitudes, and stereotypes (Indirect Effect = .05_[95%CI=.090;.157] for willingness to interact, Indirect Effect = .05_[95%CI=.175;.940] for affective, Indirect Effect = .03_[95%CI=.026;.993] for behavioral, Indirect Effect = .04_[95%CI=.124;.908] for cognitive, Indirect Effect = -.03_[95%CI=-.792;-.012] for stereotypes). There were significant indirect effects of quality through social support on willingness to interact, affective, behavioral, and cognitive attitudes, and stereotypes toward people with physical disabilities (Indirect Effect = .10_[95%CI=.195;.292] for willingness to interact, Indirect Effect = .10_[95%CI=.373;.068] for affective, Indirect Effect = .03_[95%CI=.026;.993] for behavioral, Indirect Effect = .09_[95%CI=.239;.967] for cognitive, Indirect Effect = -.07_[95%CI=-.455;-.109] for stereotypes). The indirect effects through social support on behavioral attitudes and stereotypes toward people with physical disabilities were borderline significant.

In the first hypothesized model, there was a significant direct effect of spontaneous disclosure on willingness to interact (Direct Effect = .24_[95%CI=.088;.721]). There was a significant direct effect of communication quality on stereotypes toward people with disabilities (Direct Effect = -.40_[95%CI=-.013;-.992]). In addition, there was a significant direct effect of communication quality on willingness to interact (Direct Effect = .33_[95%CI=.571;.113]). There were no direct effects of any independent variable on affective attitudes, cognitive attitudes, or behavioral attitudes.

In the second hypothesized model, results indicated there were significant indirect effects of communication quality through anxiety on willingness to interact, affective attitudes, cognitive attitudes, behavioral attitudes, and stereotypes toward people with physical disabilities (Indirect Effect = .21_[95%CI=.999;.497] for willingness to interact, Indirect Effect = .16_[95%CI=.839;.633] for affective attitudes, Indirect Effect_[95%CI=.948;.619] = .16 for cognitive attitudes, Indirect Effect = .15_[95%CI=.775;.460] for behavioral attitudes, Indirect Effect = -.20_[95%CI=-.084;-.136] for stereotypes).

There were no significant indirect effects of spontaneous disclosure, protective disclosure, or communication frequency.

In the second hypothesized model, results indicated a significant direct effect of spontaneous disclosure on willingness to interact (Direct Effect = .34_[95%CI=.088;.721]). There was a significant direct effect of communication frequency on affective attitudes (Direct Effect = .10_[95%CI=.120;.910]). There was also a significant direct effect of communication frequency on behavioral attitudes (Direct Effect = .08_[95%CI=.010;.578]). In addition, there was a significant direct effect of communication quality on stereotypes toward people with physical disabilities (Direct Effect = -.27_[95%CI=.455;.876]). There were no direct effects of any independent variables on cognitive attitudes.

Chapter Five:

Discussion

Summary of Major Findings

The current study extends prior intergroup contact research (Allport, 1954; Pettigrew, 1998) and disability research (Braithwaite & Braithwaite, 2003; Braithwaite & Harter, 2000) by focusing on the influences of individuals without disabilities' perceptions of communication with their most frequent contact with an invisible physical disability and willingness to communicate with, stereotypes and attitudes toward people with physical disabilities. Specifically, the current study tested two models featuring the mediating roles of social support and intergroup communication anxiety.

Estimations of the first model revealed that spontaneous disclosure, protective disclosure, communication frequency, and communication quality all had significant indirect effects through social support on willingness to interact, intergroup attitudes, and endorsement of stereotypes toward people with physical disabilities. Testing of the second model revealed that intergroup communication anxiety was a significant mediator between communication quality and all dependent measures. In both models, spontaneous disclosure and communication quality had a significant direct effect on willingness to interact and stereotypes, respectively. Furthermore, results revealed that communication quality had a significant direct effect on willingness to communicate in model 1 and communication frequency had a significant direct effect on both affective and behavioral attitudes in model 2. Altogether, the findings from the current study support intergroup contact theory in important ways and have major implications for interability research.

First, in line with previous intergroup contact research, communication quality played critical roles in intergroup attitudes either directly or indirectly through social support and

intergroup anxiety. (Gudykunst, 1986). Specifically, communication quality had significant indirect effects on affective, behavioral, and cognitive attitudes, stereotypes, and willingness to communicate through both intervening variables of social support and intergroup anxiety. In addition, communication quality was a positive predictor of willingness to interact with and negative predictor of stereotypes toward people with physical disabilities, indicating the pivotal role played by communication quality in reducing intergroup biases and prejudice. This supports previous intergroup contact research that positive intergroup encounters have the ability to reduce prejudice and biases toward a minority group (Imamura et al., 2012; Spencers-Rodgers & McGovern, 2002). Hence, contributing to prior intergroup contact research, findings in this study show that positive contact enhances intergroup relations in the context of disability.

Similarly, communication frequency directly contributed to positive affective and behavioral attitudes, and was a significant predictor of social support, which was positively associated with intergroup attitudes toward people with physical disabilities. However, communication frequency was not associated with intergroup anxiety. In other words, frequency of communication with an individual with an invisible physical disability creates the need for social support, but was inadequate in raising or reducing communication anxiety. Thus, communication frequency as it has previously been considered in intergroup contact research continues to be an important variable (albeit not as powerful as communication quality) insofar as continued exposure to an outgroup member has the potentiality to change attitudes associated with that cultural group (Harwood, Giles, & Palomares, 2008). Effective interpersonal contact is essential to the betterment of intergroup relations. Therefore, communication quality and communication frequency can lead to positive individual level interactions, such as social support, and then improved group level attitudes.

Second, the current study uniquely differentiates itself from the way the majority of prior research on intergroup contact has measured contact, which is primarily centered on quality and frequency of communication. Additional communicative measures of contact have been primarily overlooked in this field of research. Thus, the current study explored disclosure of health information by the person with an invisible physical disability as outlined by Charmaz (1991) as two new manifestations of contact. These types of disclosure were conceptualized as spontaneous and protective disclosure. Spontaneous and protective disclosure were both significant predictors of social support, leading to behavioral and attitudinal changes in intergroup relations. Specifically, within the context of invisible physical disability, disclosure takes away the invisible nature of the disability, therein creating the need for social support from the individual without a disability. However, perhaps more interestingly, spontaneous and protective disclosure did not impact intergroup anxiety, or any dependent variable directly, with the exception of willingness to communicate. Petronio's (2002) communication privacy management theory explains how disclosing private information for a person with a disability is an immensely complicated process, but has the potential to end in positive outcomes. Protective disclosure as outlined by Charmaz (1991) is constructed by the individual with a disability to control the disclosure and protect both the discloser and the person without a disability from shock, anger, fear, and ultimately, anxiety caused by the disclosure about health information. Conversely, spontaneous disclosure is raw, with minimal control and complete exposure to the person with a disability (Charmaz, 1991). This kind of spontaneous disclosure may enhance the interpersonal relationship through the development of trust and willingness to be vulnerable. However, spontaneous disclosure may also fit the assumptions of the typical negative stereotypes commonly held by people without disabilities as emotional, helpless, and hypersensitive, to

name a few (Ryan et al., 2005), thus negating the affect on uncertainty and anxiety. Since anxiety is an emotional response dealing with how one should act, how one might be perceived, and whether one will be accepted (Stephan & Stephan, 1995), it is closely related to perceived uncertainty or the inability to make a prediction in an intergroup situation. Therefore, spontaneous disclosure may reduce this kind of uncertainty that leads to anxiety since it is in line with how people without disabilities expect people with disabilities to disclose information. In addition, any uncertainty people without disabilities experienced may have been reduced due to the self disclosure in general.

Self disclosure has been established as a significant construct in the quality of interpersonal relationships; however, it is only recently being explored in intergroup and intercultural relationships (Soliz & Harwood, 2006). Spontaneous disclosure directly and negatively contributed to the person without a disabilities' willingness to interact people with physical disabilities as a group, however neither type of disclosure directly contributed to any other attitudes. Both spontaneous and protective disclosure were significant factors in predicting social support and attitudes toward people with physical disabilities. The current study utilized a scale solely focused on disclosure in the context of disability, therefore further work should examine the role of disclosure in predicting positive attitudes while operationalizing disclosure in different ways (e.g., Soliz & Harwood, 2006).

Next, one of the necessary conditions of contact in intergroup contact theory is the potential to form close interpersonal relationships with outgroup members (Allport, 1954). This study provides empirical support for the important role social support plays in developing interpersonal relationships established in positive interability contexts. From an interpersonal perspective, Pierce, Sarason, and Sarason (1991) assert that social support leads to a greater

sense of security and less interpersonal anxiety. Specifically, in interability contexts, having someone to share fears and sorrows with strengthens the relationship between the person with a disability and the person without a disability (Cutrona, 1990). In the current study, the person without a disability's perception of social support he/she provided to the person with an invisible physical disability during the first conversation(s) about his/her disability was found to have a significant positive contribution to all dimensions of attitude and willingness to interact with people with disabilities. In addition, social support is negatively associated with an endorsement of commonly held stereotypes about people with physical disabilities. When people without disabilities provide support to people with disabilities they can feel uncertain and anxious, therefore, when they feel positive about the support they provided, they are more likely to feel positively about people with physical disabilities as a whole (Braithwaite & Harter, 2000). Thus, positive and helpful social support by the person without a disability positively effects intergroup attitudes.

Findings from this study support recent research that a positive relational variable, such as social support, can function similar to intergroup anxiety as a mediating variable in the relationship between contact and attitudes (Pettigrew & Tropp, 2008). The findings in the current study support previous research that explore the benefits peer social support has on both the person without a disability and the person with a disability (Cutrona, 1996; Pennebaker, 1990). Especially, since people with disabilities fear stigmatization when disclosing about their invisible disability (Williams & Mickelson, 2008), research should investigate social support from the perspective of both the person without a disability and the person with a disability moving forward. Social support is under-researched in intergroup research, but plays an important role and should continue to be explored. Specifically, understanding how social support can

maximize positive intergroup attitudes in a variety of intergroup contexts (Soliz & Harwood, 2006).

Intergroup anxiety has and continues to be an important mediator in intergroup contact research. It is essential to reduce intergroup anxiety in order to reduce prejudice, which leads to positive attitudes toward the outgroup (Brown & Hewstone, 2005). In the current study, less anxiety leads to more positive attitudes on all dimensions, increased willingness to interact with people with physical disabilities as a whole, and a decrease in endorsement of commonly held negative stereotypes toward people with physical disabilities. Communication quality is negatively associated with anxiety, therefore communication has the ability to reduce anxiety, which leads to more positive intergroup attitudes and a reduction in biases and prejudice. Overall, anxiety in the current study paints a positive picture of peoples without a disabilities' attitudes toward people with physical disabilities, in general. The current study illustrates the importance of intergroup communication anxiety as a mediator in interability research.

Finally, the majority of intergroup contact research focuses on the three dimensions of attitudes (affective, cognitive, behavioral), or focuses closer in on one or two of them. The current study includes willingness to interact with people with physical disabilities and endorsement of negative stereotypes about people with physical disabilities, in addition to the three dimensions of attitudes. Cognitive attitudes are global measures of attitudes that can be applied to any group of people (Tropp & Pettigrew, 2005), whereas stereotypes are group specific and derived from the literature on negative stereotypes specifically about people with physical disabilities. Incorporating these additional dependent variables allows for a more complete understanding of both global attitudes and group specific traits and contributes to the literature on intergroup attitudes.

Suggestions for Future Research and Limitations

This study provides many possibilities for further research in intergroup and interability communication. More research is needed focusing on intergroup attitudes and stereotypes toward people with physical disabilities, generally. Interability research is an extremely underdeveloped context within intergroup research. With 19% of the population, about 56.7 million people, having a disability as of 2010 and 8.6% of those people with disabilities under the age of 65 years old, people with disabilities make up a large and growing portion of the United States (Bernstein, 2010). Interability interactions are becoming unavoidable, especially with the Americans with Disabilities Act and the Individuals with Disabilities Education Act working to ensure people with disabilities are accommodated in the workplace and in schools. A fuller understanding of these interability interactions will continue to extend intergroup communication research.

In line with the majority of intergroup contact research, the current study is cross-sectional in design. In the future, research should investigate people without a disabilities' contact and attitudes toward people with physical disabilities before their most frequent contact with an invisible physical disability discloses about his/her disability and continue to measure attitudes as contact between the pair evolves. This type of longitudinal design would allow for attitudinal change to properly be assessed.

Interability contact research could continue to be improved by including other communication variables commonly utilized in intergroup and intercultural communication research. Specifically, investigating the role of communication accommodation, group salience, and typicality could bring to light many important factors in interability communication and theoretically strengthen the research (Harwood et al., 2008). In addition, continuing in a similar

direction as the current study, intergroup communication research should continue to answer Pettigrew and Tropp's (2008) call to include positive mediating variables, so that intergroup anxiety is not the sole intervening variable considered in intergroup contact research.

While the majority of previous research on intergroup contact looks solely at communication frequency and communication quality, the current study included spontaneous and protective disclosure as types of contact. The purpose in creating original scales was to focus heavily on the aspect of disability within the disclosure. However, due to the low reliability of the scales (spontaneous disclosure, $\alpha = .65$; protective disclosure, $\alpha = .75$), disclosure should be operationalized in different ways to see how disclosure about disability, specifically within the context of invisible physical disability, impacts intergroup attitudes.

Another direction that future research should ameliorate is the complete lack of research from the perspective of the person with a physical disability. While recruiting people with disabilities is more challenging, it could enrich interability and intergroup communication research. Focusing on the minority groups' perspective would bring even more enriching and enlightening information about the communicative experiences and attitudes within intergroup relationships.

Finally, when investigating the relationship between people with disabilities and the majority group of people without disabilities, an important question arises: What should people with disabilities, specifically invisible physical disabilities, take away from this project? First, there are benefits to self disclosure about health information. Disclosure that is considered both protective and spontaneous leads to social support and willingness to communicate from the person without a disability, and then to improved intergroup relations and a reduction in stereotypes. In addition, people with invisible physical disabilities should be encouraged,

cautiously, to seek social support through communication. The current study highlights people without disabilities' relative open-mindedness and willingness to help people with disabilities and paints a promising picture for intergroup relationships between people with physical disabilities and people without disabilities. Future research should continue to explore the roles played by communication in creating interpersonal bonding and intergroup empathy, therein increasing social support and reducing uncertainty between groups, thus enhancing our understanding of the mechanisms in explaining communication and the reduction of intergroup biases. The general contact quality between participants and their most frequent contact with a disability reported in this study was high ($M = 5.89$), which could be partially due to report of the most frequent contacts as family members or friends. Future research should also examine interability communication with a focus on more negative experiences to understand the complexities of contact and intergroup relations. A specific negative context of interability communication could be asking participants to report a most frequent contact with a disability in the nonfamily context such as in work places or a more recent negative contact experience.

References

- Afifi, W. A., & Guerrero, L. K. (1998). Some things are better left unsaid II: Topic avoidance in friendships. *Communication Quarterly*, 46(3), 231-249. doi: 10.1080/01463379809370099
- Allport, G.W. (1954). *The nature of prejudice*. Reading, MA: Addison-Wesley.
- Allen, B. J. (2011). Ability matters. In B. J. Allen (Eds.), *Difference matters: Communicating social identity* (pp. 137-160). New York: Waveland Press.
- Bernstein, R. (2012). Nearly 1 in 5 People Have a Disability in the U.S., Census Bureau Reports. U.S. Census Bureau. Retrieved from <https://www.census.gov/newsroom/releases/archives/miscellaneous/cb12-134.html>
- Biernat, M., & Crandall, C.S. (1994). Stereotyping and contact with social groups: Measurement and conceptual issues. *European Journal of Social Psychology*, 24, 659-677. doi: 10.1002/ejsp.2420240604
- Blockmans, I. G. E. (2015). “Not wishing to be the white rhino in the crowd”: Disability-disclosure at university. *Journal of Language and Social Psychology*, 34(2), 158-180. doi: 10.1177/0261927X14548071
- Braithwaite, D. O. (1991). “Just how much did that wheelchair cost?”: Management of privacy boundaries by persons with disabilities. *Western Journal of Speech Communication*, 55, 254-274. doi: 10.1080/10570319109374384
- Braithwaite, D. O., & Braithwaite, C. A. (2003). “Which is my good leg?”: Cultural communication of persons with disabilities. *Intercultural Communication: A reader*, 14, 165-176.
- Braithwaite, D. O., & Harter, L. M. (2000). Communication and the management of dialectical tensions in the personal relationships of people with disabilities. In D. O. Braithwaite &

- T. L. Thompson (Eds.) *Handbook of communication and people with disabilities* (pp. 15-30). Mahwah, NJ: Erlbaum.
- Braithwaite, D. O., & Labrecque, D. (1994). Responding to the Americans with disabilities act: Contributions of interpersonal communication research and training. *Journal of Applied Communication Research*, 22, 287-294. doi: 10.1080/00909889409365403
- Braithwaite, D. O., Waldron, V. R., & Finn, J. (1999). Communication and social support of computer-mediated groups for people with disabilities. *Health Communication*, 11, 123-151. doi: 10.1207/s15327027hc1102_2
- Brewer, M. B., & Miller, N. (1996). *Intergroup relations*. Pacific Grove, CA: Brooks/Cole Publishing.
- Brown, R., & Hewstone, M. (2005). An integrative theory of intergroup contact. *Advances in Experimental Social Psychology*, 37, 255-343. doi: 10.1016/S0065-2601(05)37005-5
- Burleson, B. R. & MacGeorge, E. L. (2002). Supportive communication. In M. L. Knapp & J. A. Daly (Eds.), *Handbook of Interpersonal Communication* (pp. 374-424). Thousand Oaks, CA: Sage.
- Caspi, A. (1984). Contact hypothesis and inter-age attitudes: A field study of cross-age contact. *Social Psychology Quarterly*, 47, 74-80.
- Caughlin, J. P., Afifi, W. A., Carpenter-Theune, K. E., & Miller, L. E. (2005). Reasons for, and consequences of, revealing personal secrets in close relationships: A longitudinal study. *Personal Relationships*, 12, 43-59. doi: 10.1111/j.1350-4126.2005.00101.x
- Charmaz, K. C. (1991). Disclosing illness. In K. Charmaz (Eds.), *Good days, bad days: the self in chronic illness and time* (pp. 107-134). New Brunswick: Rutgers.
- Checton, M. G., Greene, K., Magsamen-Conraden, K., Venetis, M. K. (2012). Patients' and

- partners' perspectives of chronic illness and its management. *Families, Systems, & Health*, 30, 114-129. doi: 10.1037/a0028598
- Cohen, M., & Avanzino, S. (2010). We are people first: Framing organizational assimilation experiences of the physically disabled using co-cultural theory. *Communication Studies*, 61(3), 272-303. doi: 10.1080/10510971003791203
- Cutrona, C. E. (1996). In *Sickness and in Health: When One Partner Has a Serious Illness*. In C. E. Cutrona (Eds.) *Social support in couples* (pp. 79-99). Thousand Oaks, CA: Sage.
- Davis, M. H. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology*, 44, 113-126.
- Deutsch, M., & Collins M. (1951). *Interracial housing: A psychological evaluation of a social experiment*. Minneapolis: University of Minnesota Press.
- Dovidio, J. F., Johnson, J. D., Gaertner, S. L., Pearson, A. R., Saguy, T., & Ashburn-Nardo, L. (2010). Empathy and intergroup relations. In M. Mikulincer & P. Shaver (Eds.), *Prosocial motives, emotion, and behavior: The better angels of our nature* (pp. 393-408). Washington, DC: APA Press.
- Ellsworth, E. (2003). *Disclosure of non-visible disability in the workplace when requesting reasonable accommodation in accordance with the Americans with disabilities act*. Unpublished master's thesis, University of Kansas, Lawrence, Kansas.
- Ellsworth, E. (2008). *An analysis of message development strategies, message topics, functional consequences, and social responses of requesting an accommodation in the workplace due to a chronic health condition*. Unpublished doctoral dissertation, University of Kansas, Lawrence, KS.

- Frymier, A. B., & Wanzer, M. B. (2003). Examining differences in perceptions of students' communication with professors: A comparison of students with and without disabilities. *Communication Quarterly*, 51, 174-191. doi: 10.1080/01463370309370149
- Gabriel, R., Figueiredo, D., Jacome, C., Cruz, J., & Marques, A. (2014). Day-to-day living with severe chronic obstructive pulmonary disease: Towards a family-based approach to illness impacts. *Psychology & Health*, 29, 967-983. doi: 10.1080/08870446.2014.902458
- Gaertner, S. L., & Dovidio, J. F. (2000). Theoretical background and the common ingroup identity model. *Reducing intergroup bias: The common ingroup identity model* (pp. 33-51) Philadelphia, PA: Psychology Press.
- Giallo, R., Gavidia-Payne, S. (2006). Child, parent, and family factors as predictors of adjustment for siblings of children with a disability. *Journal of Intellectual Disability Research*, 50, 937-948. doi: 10.1111/j.1365-2788.2006.00928.x
- Goffman, E. (1986). *Stigma: Notes on the management of spoiled identity*. New York, NY: Simon & Schuster.
- Goldsmith, D. J. (2004). *Communicating social support*. New York, NY: Cambridge University Press.
- Grove, T. G., & Werkman, D. L. (1991) Conversations with able-bodied and visibly disabled strangers: An adversarial test of predicted outcome value and uncertainty reduction theories. *Human Communication Research*, 17, 507-534. doi: 10.1111/j.1468-2958.1991.tb00242.x
- Gudykunst, W.B. (Ed.). (1986). *Intergroup communication*. Baltimore: E. Arnold.

- Harwood, J., Giles, H. & Palomares, N. A. (2008). Intergroup theory and communication processes. In J. Harwood & H. Giles (Eds.), *Intergroup communication: Multiple perspectives* (pp. 1-17). New York: Peter Lang Publishing, Inc.
- Harwood, J., Hewstone, M., Paolini, S., & Voci, A. (2005). Grandparent-grandchild contact and attitudes toward older adults: Moderator and mediator effects. *Personality and Social Psychology Bulletin*, 31(3), 393-406. doi: 10.1177/0146167204271577
- Hayes, A. F. (2013). Introduction to mediation, moderation, and conditional process analysis. New York, New York: Guilford Press.
- Hummert, M. L., Shaner, J. L., & Garstka, T. A. (1995). Cognitive processes affecting communication with older adults: The influence of age stereotypes, context, and communicator age. *Human Communication Research*, 25, 124-151. doi: 10.1111/j.1468-2958.1998.tb00439.x
- Hutchinson, P. & Rosenthal, H. E. S. (2010). Prejudice against Muslims: Anxiety as a mediator between intergroup contact and attitudes, perceived group variability and behavioural intentions. *Ethnic and Racial Studies*, 34(1), 40-61. doi: 10.1080/01419871003763312
- Imamura, M., Zhang, Y. B., & Harwood, J. (2011). Japanese sojourners' attitudes toward Americans: Exploring the influences of communication accommodation, linguistic competence, and relational solidarity in intergroup contact. *Journal of Asian Pacific Communication*, 21(1), 115-132. doi: 10.1075/japc.21.1.09ima
- Imamura, M., Zhang, Y. B., & Shim, C. (2012). US host nationals' attitudes toward Japanese: The role of communication and relational solidarity in the intergroup contact hypothesis. *Asian Journal of Communication*, 22, 584-600. doi: 10.1080/01292986.2012.717096

- Levy, B. R. (2003). Mind matters: Cognitive and physical effects of aging self-stereotypes. *Journal of Gerontology: Psychological Sciences*, 58B, 203-211. doi: 10.1093/geronb/58.4.P203
- Longmore, P. K. & Umansky, L. (Eds.) (2001). *The new disability history: American perspectives*. New York: New York University Press, pg. 12.
- Matthews, C. K. (1994). To tell or not to tell: The management of privacy boundaries by the invisibly disabled. Paper presented at the annual meeting of the Western States Communication Association, San Jose, CA.
- Matthews, C. K., & Harrington, N. G. (2000). Invisible disability. In D. O. Braithwaite & T. L. Thompson (Eds.) *Handbook of communication and people with disabilities* (pp. 405-421). Mahwah, NJ: Erlbaum
- Oakes, P. (2003). The root of all evil in intergroup relations? Unearthing the categorization process. In R. Brown & S. Gaertner (Eds.), *Blackwell handbook of social psychology: Intergroup Processes* (pp. 3-21). Malden, MA: Blackwell.
- Operario, D., & Fiske, S. T. (2003). Stereotypes: Content, structures, processes, and context. In R. Brown & S. Gaertner (Eds.), *Blackwell handbook of social psychology: Intergroup Processes* (pp. 22-44). Malden, MA: Blackwell.
- Paolini, S., Hewstone, M., Cairns, E., & Voci, A. (2004). Effects of direct and indirect cross-group friendships on judgments of Catholics and Protestants in Northern Ireland: The mediating role of an anxiety reduction mechanism. *Personality and Social Psychology Bulletin*, 30, 770–786.
- Pennebaker, J. (1990). Becoming healthier through writing. In J. W. Pennebaker (Eds.), *Opening Up: The Healing Power of Expressing Emotions* (pp. 26-42). New York, NY: Guilford.

- Petronio, S. (2002). Rule management process 1: Privacy rule foundations. In S. Petronio (Ed.), *Boundaries of privacy: Dialectics of disclosure* (pp. 37-82). Albany, NY: State University of New York Press.
- Petronio, S., & Durham, S. T. (2015). Communication privacy management theory: Significance for interpersonal communication. In D. O. Braithwaite & P. Schrodt (Eds.), *Engaging theories in interpersonal communication: Multiple perspectives* (pp. 335-347). Thousand Oaks, CA: Sage.
- Pettigrew, T.F. (1998). *Intergroup contact theory*. *Annual Review of Psychology*, 49, 65-85.
- Pettigrew, T.F., & Tropp, L.R. (2008). How does intergroup contact reduce prejudice?: Meta-analytic tests of three mediators. *European Journal of Social Psychology*, 38, 922-934.
- Pierce, G. R., Sarason, I. G., & Sarason, B. R. (1991). General and relationship-based perceptions of social support: Are two constructs better than one? *Journal of Personality and Social Psychology*, 61, 1028-1039. doi: 10.1037/0022-3514.61.6.1028
- Ryan, E. B., Bajorek, S. Beaman, A., & Anas, A. P. (2005). "I just want you to know that 'them' is me": Intergroup perspectives on communication and disability. In J. Harwood & H. Giles (Eds.) *Intergroup communication: Multiple perspectives* (pp. 117-140). New York, NY: Peter Lang Publishing.
- Ruble, R. A., & Zhang, Y. B. (2012). Stereotypes of Chinese international students held by Americans. *International Journal of Intercultural Relations*, 37, 202-211. doi: S0147176712001411
- Schneider, J. W. & Conrad, P. (1980). In the closet with illness: Epilepsy, stigma potential, and information control. *Social Problems*, 28, 32-44. doi: 10.2307/800379

- Soliz, J. & Harwood, J. (2006). Shared family identity, age salience, and intergroup contact: Investigation of the grandparent–grandchild relationship. *Communication Monographs*, 73:1, 87-107, doi: 10.1080/03637750500534388.
- Spencers-Rodgers, J., & McGovern, T. (2002). Attitudes toward the culturally different: The role of intercultural communication barriers, affective responses, consensual stereotypes, and perceived threat. *International Journal of Intercultural Relations*, 26, 609-631. doi: 10.1016/S0147-1767(02)00038-X
- Stephan, W. G., & Finlay, K. (1999). The role of empathy in improving intergroup relations. *Journal of Social Issues*, 55(4), 729-743.
- Stephan, W. G., & Stephan, C. W. (1985). Intergroup anxiety. *Journal of Social Issues*, 41, 157–175. doi: 10.1177/1088868314530518
- Swart, H., Hewstone, M., Christ, O., & Voci, A. (2011). Affective mediators of intergroup contact: A three-wave longitudinal study in South Africa. *Journal of Personality and Social Psychology*, 101(6), 1221-1238. doi: 10.1037/a0024450
- Texas Council for Developmental Disabilities. (2007). People first language. Retrieved from <http://www.tcdd.texas.gov/resources/people-first-language/>
- Tropp, L.R., & Pettigrew, T.F. (2005). Differential relationships between intergroup contact and affective and cognitive dimensions of prejudice. *Personality and Social Psychology Bulletin*, 31, 1145-1158. doi: 10.1177/0146167205274854
- Voci, A., & Hewstone, M. (2003). Intergroup contact and prejudice toward immigrants in Italy: The mediational role of anxiety and the moderational role of group salience. *Group Processes and Intergroup Relations*, 6, 37–54. doi: 10.1177/1368430203006001011

- Wagner, U., Hewstone, M., & Machleit, U. (1989). Contact and prejudice between Germans and Turks. *Human Relations*, 42, 561-574. doi: 10.1177/001872678904200701
- Williams, S. L., & Mickelson, K. D. (2008). A paradox of support seeking and rejection among the stigmatized. *Personal Relationships*, 15, 493-509. doi: 1350-4126/08
- Werth, J. L., & Lord, C. G. (1992). Previous conceptions of the typical group member and the contact hypothesis. *Basic and applied social psychology*, 13(3), 351-369. doi: 10.1207/s15324834basp1303_6
- Wilder, D., & Simon, A. F. (2003). Affect as a cause of intergroup bias. In R. Brown & S. L. Gaertner (Eds.) *Blackwell handbook of social psychology: Intergroup processes*. Oxford, UK: Blackwell. doi: 10.1002/9780470693421.ch8
- Worley, D. W. (2000). Communication and students with disabilities on college campuses. In D. O. Braithwaite & T. L. Thompson (Eds.) *Handbook of communication and people with disabilities* (pp. 125-139). Mahwah, NJ: Erlbaum.

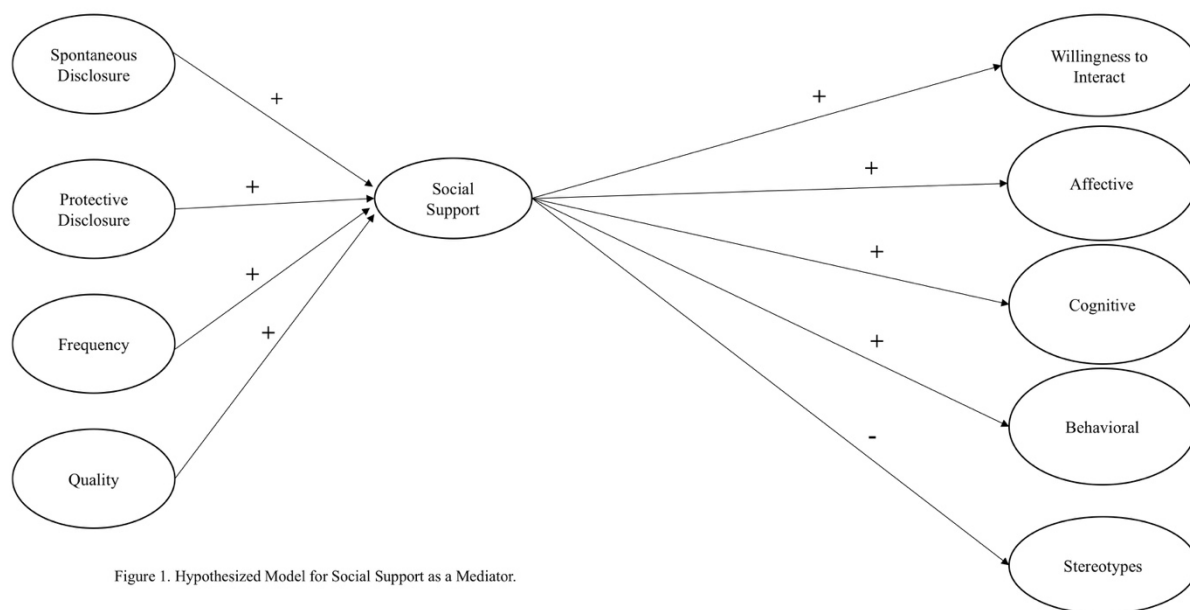
Figure 1: Hypothesized Model 1 for Social Support

Figure 2: Hypothesized Model 2 for Intergroup Anxiety

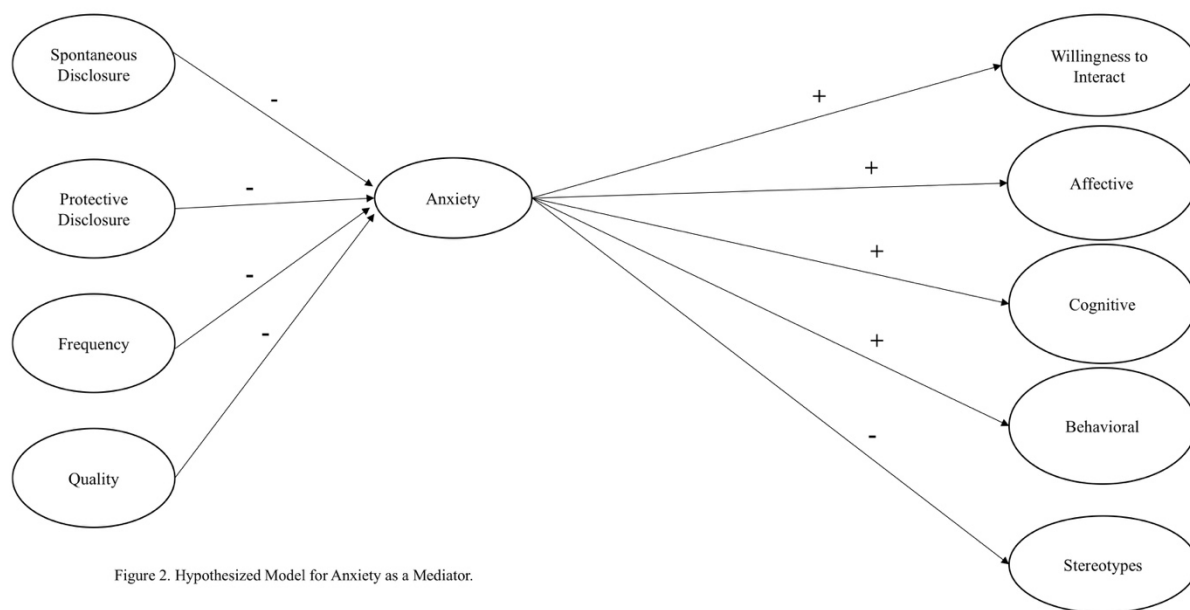


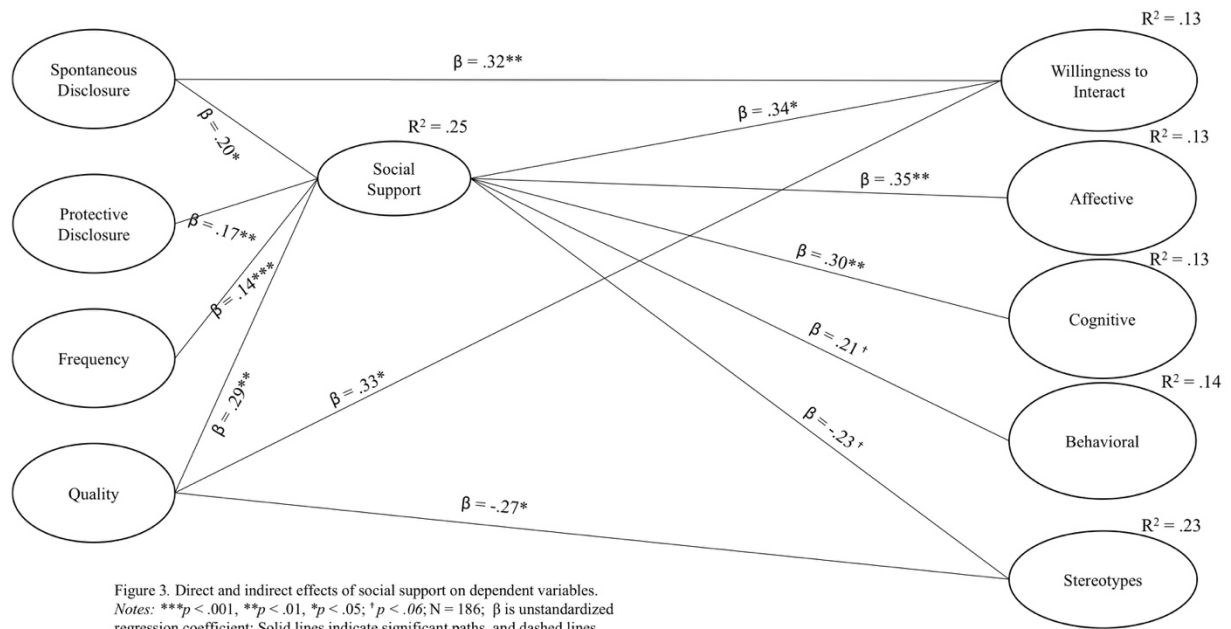
Figure 3: Results from Mediation of Social Support, Figure 3

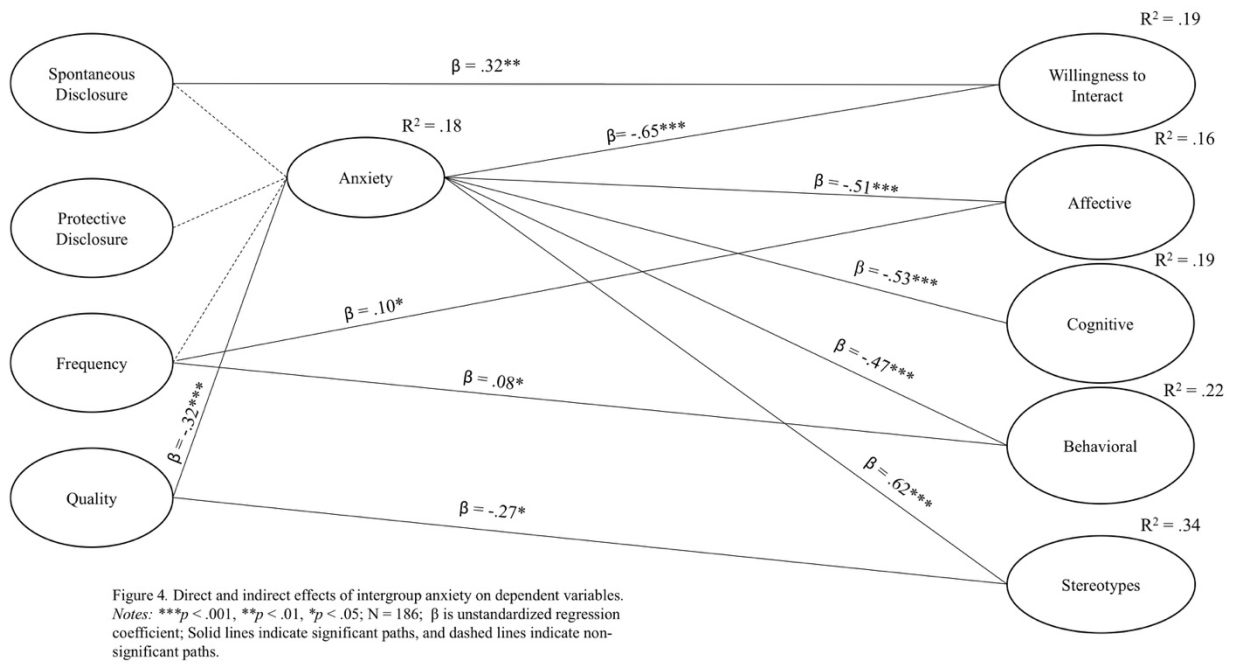
Figure 4: Results from Mediation of Anxiety, Figure 4

Table 1: Correlation Table

Table 1

Correlations among variables

Variables	M	SD	1	2	3	4	5	6	7	8	9	10
1. Spontaneous Disclosure	2.30	1.06										
2. Protective Disclosure	2.86	1.30	.25**									
3. Frequency	4.26	1.79	-.06	.05								
4. Quality	5.89	1.11	-.46**	-.08	.31**							
5. Social Support	5.62	.96	.08	.24**	.33**	.28**						
6. Anxiety	2.81	.80	.12	-.02	-.16*	.24*	.34**					
7. Willingness to Interact	6.66	1.57	.05	-.01	.16*	.24**	.29**	-.39**				
8. Affective	5.43	1.23	-.03	.05	.21**	.20**	.33**	-.37**	.42**			
9. Cognitive	5.17	1.09	.00	.07	.19**	.19**	.33**	-.41**	.34**	.65**		
10. Behavioral	5.53	1.04	-.07	.10	.23*	.27*	.30*	-.42**	.53**	.38**	.48**	
11. Stereotypes	2.67	1.20	.12	.03	-.24**	-.43**	-.31**	.52**	-.31**	-.32**	-.38**	-.43**

* $p < .05$, ** $p < .01$

Appendix A: Background Information

[Instructions: Please answer the following questions by filling in the blank and/or checking the applicable box.]

1. Please indicate your sex.
 - ☐ 1. Female
 - ☐ 2. Male
 - ☐ 3. Other. Please Specify: _____

2. Please indicate your age.

_____ years old

3. Education: Please indicate your current year of study in college.
 - ☐ 1. Freshman/First Year
 - ☐ 2. Sophomore/Second Year
 - ☐ 3. Junior/Third Year
 - ☐ 4. Senior/Fourth Year
 - ☐ 5. Other. Please Specify: _____

4. Please indicate your total years of education (e.g., freshman in college = 13 years, sophomore in college = 14 years, junior in college = 15 years, senior in college = 16 years).

_____ years

5. Race/Ethnicity: Please indicate your race/ethnicity.
 - ☐ 1. Hispanic/Latino
 - ☐ 2. Black/African American
 - ☐ 3. White/Caucasian
 - ☐ 4. American Indian or Alaskan Native
 - ☐ 5. Asian/Pacific Islander
 - ☐ 6. Other. Please Specify: _____

6. Do you self identify as having a physical disability? ☐ Yes ☐ No

An invisible physical disability is a physical disability or chronic condition “that is hidden so as not to be immediately noticed by an observer except under unusual circumstances or by disclosure by the disabled person” (Matthews & Harrington, 2000, p. 405). For example, epilepsy, diabetes, traumatic brain injury, chronic fatigue syndrome, cystic fibrosis, Crohn’s disease, etc.

- a. According to the definition above, do you self identify as having an invisible physical disability?

☐ Yes ☐ No

- b. If yes, what invisible physical disability do you have?

- c. According to the definition above, do you know anyone with an invisible physical disability?

☐ Yes ☐ No

- d. According to the definition above, how many people do you know that have an invisible physical disability?

- e. Among these people, who do you communicate with most frequently? Please give the name of this person?

Appendix B: Basic Information about Your Most Frequent Contact with an Invisible Disability.

Instructions: Remember the person you have identified as your most frequent contact with an invisible physical disability. Please answer the following questions keeping this person in mind.

1. What is this person's name?

2. What is your relationship with this person?

3. What is this person's sex?
☐ 1. Female
☐ 2. Male
☐ 3. Other. Please Specify: _____
4. How old is this person?
____ years old
5. How long have you known this person? Answer in years.
____ years
6. What is this person's race/ethnicity?
☐ 1. Hispanic/Latino
☐ 2. Black/African American
☐ 3. White/Caucasian
☐ 4. American Indian or Alaskan Native
☐ 5. Asian/Pacific Islander
☐ 6. Other. Please Specify: _____
7. What invisible physical disability does this person have?

8. How did you find out about this person's invisible physical disability?
☐ 1. He/she self disclosed about his/her disability to me.
☐ 2. I found out indirectly about his/her disability from a third party.
☐ 3. I initiated the conversation about his/her disability.
☐ 4. Other. Please Specify: _____

Appendix C: Disclosure

[The following scales are to be answered while considering your most frequent contact with an invisible physical disability.]

1. Think about the first conversation(s) you and your most frequent contact with an invisible physical disability that you identified previously had about his/her disability. Who initiated the conversation?

☐ 1. The person with an invisible physical disability initiated the conversation about his/her disability.

☐ 2. I initiated the conversation about his/her disability.

[Instructions: Consider the first conversation(s) when you and your most frequent contact with an invisible physical disability that you identified previously discussed his/her disability. Please provide a rating indicating the extent to which you agree or disagree with each of the following statements, (1 = Strongly Disagree, 7 = Strongly Agree).]

Spontaneous:	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
He/she was babbling on about his/her disability.	1	2	3	4	5	6	7
His/her disclosure about his/her disability seemed to spring up out of context.	1	2	3	4	5	6	7
He/she seemed out of control emotionally during the disclosure about his/her disability.	1	2	3	4	5	6	7
He/she was flooded with emotions during the disclosure about his/her disability.	1	2	3	4	5	6	7
Protective:	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
He/she seemed to soften the news about his/her disability to protect me.	1	2	3	4	5	6	7
He/she planned out how to tell me and when to tell me about his/her disability.	1	2	3	4	5	6	7
He/she explained his/her disability to me using information from his/her doctor's appointment and research.	1	2	3	4	5	6	7
He/she set the stage by planning a time and place for disclosure about his/her disability without interruptions.	1	2	3	4	5	6	7

Appendix D: Social Support

[Instructions: Consider the first conversation(s) you had with your most frequent contact with an invisible physical disability that you identified previously about his/her disability. Please provide a rating indicating the extent to which you agree or disagree with each of the following statements, (1 = Strongly Disagree, 7 = Strongly Agree).]

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
I showed this person that I accepted them.	1	2	3	4	5	6	7
I was there when that person needed me.	1	2	3	4	5	6	7
I comforted this person when they were feeling bad.	1	2	3	4	5	6	7
I took care of many things for them.	1	2	3	4	5	6	7
I make this person feel valued and important.	1	2	3	4	5	6	7
I expressed concern about their situation.	1	2	3	4	5	6	7
I assured them that they can rely on me.	1	2	3	4	5	6	7
I helped this person find something positive in their situation.	1	2	3	4	5	6	7
I encouraged this person not to give up.	1	2	3	4	5	6	7
I took care of things this person could not manage on their own.	1	2	3	4	5	6	7

Appendix E: Contact Frequency

[Instructions: Consider your communication, in general, with the same person with an invisible physical disability that you identified previously with whom you have the most frequent contact. Please provide a rating indicating the extent to which you agree or disagree with each of the following statements, (1 = Not very, 7 = A great deal).]

	Not very						A great deal
How often do you do things with this person?	1	2	3	4	5	6	7
How often do you do things socially with this person?	1	2	3	4	5	6	7
How often do you do work related things with this person? (including school work)	1	2	3	4	5	6	7

Appendix F: Contact Quality

[Instructions: Consider your communication, in general, with your most frequent contact with an invisible physical disability that you identified previously. Please provide a rating indicating the extent to which you agree or disagree with each of the following statements, (1 = Not at all, 7 = A great deal).]

	Not at all						A great deal
How much do you value the time that you have spent with this person, in general?	1	2	3	4	5	6	7
How pleasant has your contact been with this person, in general?	1	2	3	4	5	6	7
How friendly has your contact been with this person, in general?	1	2	3	4	5	6	7
I find it unpleasant to listen to him/her talk about his/her disability.	1	2	3	4	5	6	7
I become impatient when listening to this person talk about his/her disability.	1	2	3	4	5	6	7
I sometimes feel frustrated when interacting with this person.	1	2	3	4	5	6	7

Appendix G: Visible Disability Identification

A visible physical disability is a physical disability or chronic condition that is immediately noticed by an observer. For example, muscular dystrophy, multiple sclerosis, cerebral palsy, paraplegic/quadruplegic, rheumatoid arthritis, etc.

1. Consider this same person with an invisible physical disability that you communicate with most frequently. Does this person also have a visible physical disability, according to the definition provided above?

☐ 1. Yes

☐ 2. No

2. If yes, what visible physical disability do they have?

3. How many people with physical visible disabilities do you know?

4. Do you self identify as having a visible physical disability?

☐ 1. Yes

☐ 2. No

5. If yes, what visible physical disability do you have?

Appendix H: Intergroup Anxiety with Outgroup

[Instructions: The following statements ask you to think about how you would feel if you were interacting with people with physical disabilities as a whole. Please provide a rating by indicating the extent to which you agree or disagree with each of the following statements, (1 = Strongly Disagree, 7 = Strongly Agree).]

When interacting with people with disabilities...	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
I would feel certain.	1	2	3	4	5	6	7
I would feel awkward.	1	2	3	4	5	6	7
I would be self conscious.	1	2	3	4	5	6	7
I would feel happy.	1	2	3	4	5	6	7
I would feel accepted by her/him.	1	2	3	4	5	6	7
I would feel confident.	1	2	3	4	5	6	7
I would be irritated.	1	2	3	4	5	6	7
I would be impatient.	1	2	3	4	5	6	7
I would be defensive.	1	2	3	4	5	6	7
I would feel suspicious.	1	2	3	4	5	6	7
I would be careful.	1	3	3	4	5	6	7

Appendix I: Willingness to Interact with Outgroup

[Instructions: The following statements ask you to think about how willing or unwilling you are to communicate with people with physical disabilities as a whole. Please provide a rating by indicating the extent to which you agree or disagree with each of the following statements, (1 = Not at all, 7 = A great deal).]

	Extremely Unwilling						Extremely Willing
How willing are you to talk to a person with a physical disability?	1	2	3	4	5	6	7
How willing are you to initiate a conversation with a person with a physical disability?	1	2	3	4	5	6	7
How willing are you to chat with a person with a physical disability?	1	2	3	4	5	6	7
How willing are you to communicate with a person with a physical disability?	1	2	3	4	5	6	7

Appendix J: Affective Attitudes Toward People with Physical Disabilities

[Instructions: Please mark the number which indicates how you perceive people with physical disabilities as a whole on the following 7-point scales. For example, if you feel friendly when you think of people with physical disabilities in general, choose 6 or 7. If you feel unfriendly when you think of people with physical disabilities in general, choose 1 or 2. Otherwise, choose a number in the middle of the scale (3, 4, or 5) that best represents your feelings when you think of people with physical disabilities in general.]

“When I think of people with physical disabilities in general, I feel _____.”

Cold	1	2	3	4	5	6	7	Warm
Negative	1	2	3	4	5	6	7	Positive
Hostile	1	2	3	4	5	6	7	Friendly
Contempt	1	2	3	4	5	6	7	Respect
Suspicious	1	2	3	4	5	6	7	Trusting
Disgust	1	2	3	4	5	6	7	Admiration
Unfavorable	1	2	3	4	5	6	7	Favorable
Uncomfortable	1	2	3	4	5	6	7	Comfortable
Unpleasant	1	2	3	4	5	6	7	Pleasant

Appendix K: Cognitive Attitudes Toward People with Physical Disabilities

[Instructions: Please mark the number which indicates how you perceive people with physical disabilities in general on the following 7-point scales. For example, if you feel that people with physical disabilities in general are intolerant, choose 6 or 7. If you think that people with disabilities in general are intolerant, choose 1 or 2. Otherwise, choose a number in the middle of the scale (3, 4, or 5) that best represents your thoughts on how you perceive people with physical disabilities in general.]

In general, people with physical disabilities are...

Cold	1	2	3	4	5	6	7	Warm
Intolerant	1	2	3	4	5	6	7	Tolerant
Not good natured	1	2	3	4	5	6	7	Good-natured
Insincere	1	2	3	4	5	6	7	Sincere
Incompetent	1	2	3	4	5	6	7	Competent
Not confident	1	2	3	4	5	6	7	Confident
Dependent	1	2	3	4	5	6	7	Independent
Not competitive	1	2	3	4	5	6	7	Competitive
Stupid	1	2	3	4	5	6	7	Intelligent
Aggressive	1	2	3	4	5	6	7	Not aggressive
Conservative	1	2	3	4	5	6	7	Not conservative
Hot-headed	1	2	3	4	5	6	7	Cool-headed
Deceitful	1	2	3	4	5	6	7	Truthful
Not hospitable	1	2	3	4	5	6	7	Hospitable
Selfish	1	2	3	4	5	6	7	Unselfish

Appendix L: The Behavioral Dimension of Attitude

[Instructions: The following statements ask you to think about how you would act in the given scenarios provided the opportunity. Please provide a rating by indicating the extent to which you agree or disagree with each of the following statements, (1 = Strongly Disagree, 7 = Strongly Agree).]

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
Accept people with physical disabilities as part of my ingroup.	1	2	3	4	5	6	7
Have a number of individuals with physical disabilities move into my neighborhood.	1	2	3	4	5	6	7
Develop more than just a speaking acquaintance with people with physical disabilities.	1	2	3	4	5	6	7
Accept a person with a physical disability as a neighbor.	1	2	3	4	5	6	7
Accept people with physical disabilities as my close friends.	1	2	3	4	5	6	7
Choose to marry a person with a physical disability.	1	2	3	4	5	6	7
Work directly with people with physical disabilities in the same office.	1	2	3	4	5	6	7
Enjoy interacting with most people with physical disabilities.	1	2	3	4	5	6	7

Appendix M: Stereotypes toward People with Physical Disabilities.

[Instructions: The following statements ask you to think about how representative these statements are of people with disabilities, in general. Please provide a rating by indicating the extent to which you agree or disagree with each of the following statements, (1 = Strongly Disagree, 7 = Strongly Agree).]

People with physical disabilities...	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
Lack control.	1	2	3	4	5	6	7
Are unproductive.	1	2	3	4	5	6	7
Are sick.	1	2	3	4	5	6	7
Are burdens.	1	2	3	4	5	6	7
Are unattractive.	1	2	3	4	5	6	7
Are helpless.	1	2	3	4	5	6	7
Are passive.	1	2	3	4	5	6	7
Are childlike.	1	2	3	4	5	6	7
Are hypersensitive.	1	2	3	4	5	6	7
Are incompetent.	1	2	3	4	5	6	7
Are dependent.	1	2	3	4	5	6	7